

**NAVAL HEALTH RESEARCH CENTER  
DETACHMENT (TOXICOLOGY)**

***2001 COMMAND HISTORY***



**Report No.  
TOXDET 01-02**



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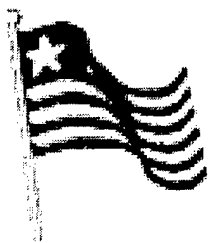


NAVAL HEALTH RESEARCH CENTER  
DETACHMENT (TOXICOLOGY)

NHRC/TD, BUILDING 433, 2612 FIFTH ST  
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**ENCLOSURE (1)**



***2001 Command History  
for  
Naval Health Research Center Detachment (Toxicology)  
Wright-Patterson Air Force Base, Ohio***



**Kenneth R. Still, Ph.D.  
Captain, MSC, USN**



# Officer in Charge

Unclassified

Report No. TOXDET 01-02

January 2001 - December 2001 Command History  
Naval Health Research Center Detachment (Toxicology)  
NHRC TOXDET  
Wright-Patterson Air Force Base, OH

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**2001 Command History  
for  
Naval Health Research Center Detachment (Toxicology)  
Wright-Patterson Air Force Base, Ohio**

**1. BASIC HISTORICAL NARRATIVE:**

**Historical**

On 01 October 1998, this Detachment was realigned under the Naval Health Research Center, San Diego, CA, from the Naval Medical Research Institute, Bethesda, MD.

**Vision**

We shall be an integral asset within the Department of Navy as the center of excellence for toxicology research solving the challenges of today and anticipating those of the future.

**Mission**

We provide the Department of Navy, Bureau of Medicine and Surgery, and other customers with timely solutions to current and anticipated operational problems through an integrated approach to innovative human health effects toxicology research.

**Detachment Goals**

- To gather, interpret, and report research data that characterizes the toxicity of materials that are of interest to the Navy.
- To ensure this data is developed in compliance with good laboratory practices, so as to formulate occupational health hazard evaluations and risk assessment.
- To maintain scientific expertise in providing information used for determining appropriate personnel exposure limits within Navy specific circumstances.

**a. Detachment's Mission:**

The mission of NHRC/Detachment (Toxicology), herein referred to as TOXDET, is to (1) develop the biochemical data necessary to characterize the toxicity of materials of interest to the Navy; (2) use these data to formulate occupational and environmental health-hazard evaluations and risk assessments, including appropriate personnel exposure limits, which addresses Navy specific circumstances of exposure; and (3) develop and maintain a cadre of naval personnel skilled in the discipline of toxicology and its application to health-hazard evaluation and risk assessment.

**b. Description of Command's Organization:**

Officer in Charge	:	Kenneth R. Still, CAPT, MSC, USN
Executive Assistant	:	Linda V. Kane, LCDR, USN
Administrative Officer	:	Mrs. Diane V. Hedges
Senior Scientist	:	Robert L. Carpenter, Ph.D.
Leading Chief Petty Officer	:	HMC Billy R. Dean, USN

NHRC TOXDET research reflects the unit responsiveness to the changing technologies of science while maintaining thrusts in areas that are directly relevant to our most important customer, the fleet sailor.

**Immediate Superior in Command:**

Commanding Officer, Naval Health Research Center, San Diego, CA

As the Department of Defense realigns organizations and resources, NHRC TOXDET is configured to continue its mission while optimizing the material, personnel, and financial resources under its stewardship. Further, NHRC TOXDET is the Tri-Service Toxicology Center of Excellence in Neurobehavioral and Inhalation Toxicology Research.

# NAVAL HEALTH RESEARCH CENTER DETACHMENT (TOXICOLOGY) PHONE DIRECTORY

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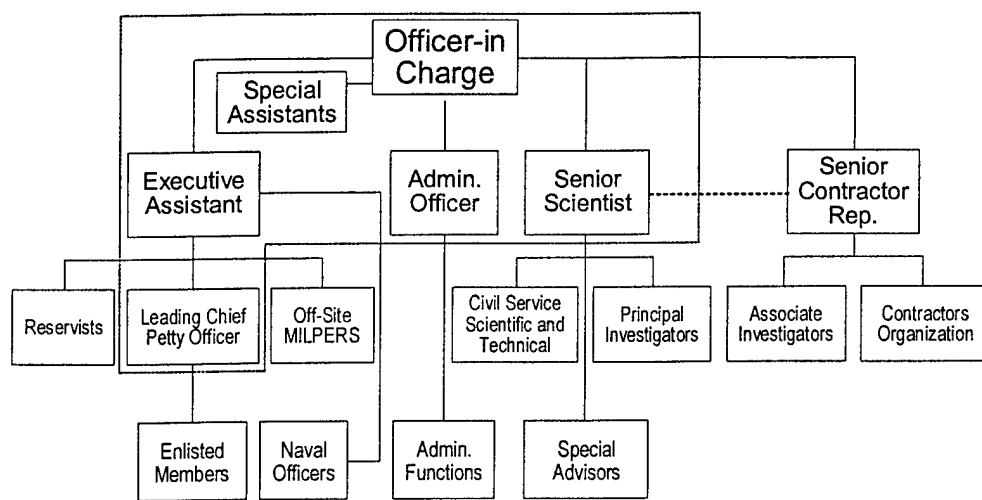
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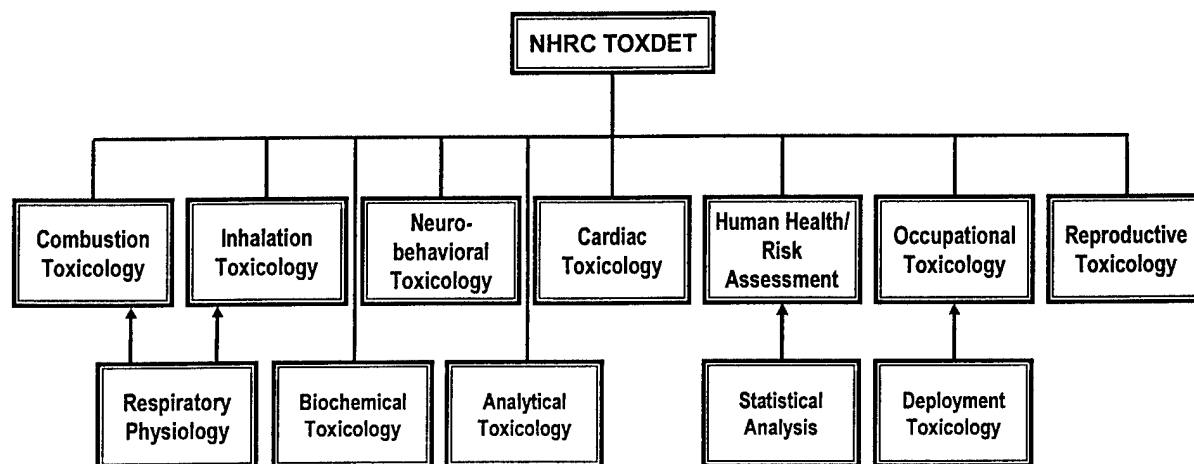
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Carpenter, R. L. Dr.	211B	Senior Scientist	212 220	Pager (937) 940-9098*
<b>Hedges, D. V. Mrs.</b>	<b>103</b>	<b>Admin Officer</b>	<b>225</b>	
Kimmel, E. C., Dr.	Bldg 824	255-0608	255-0605	
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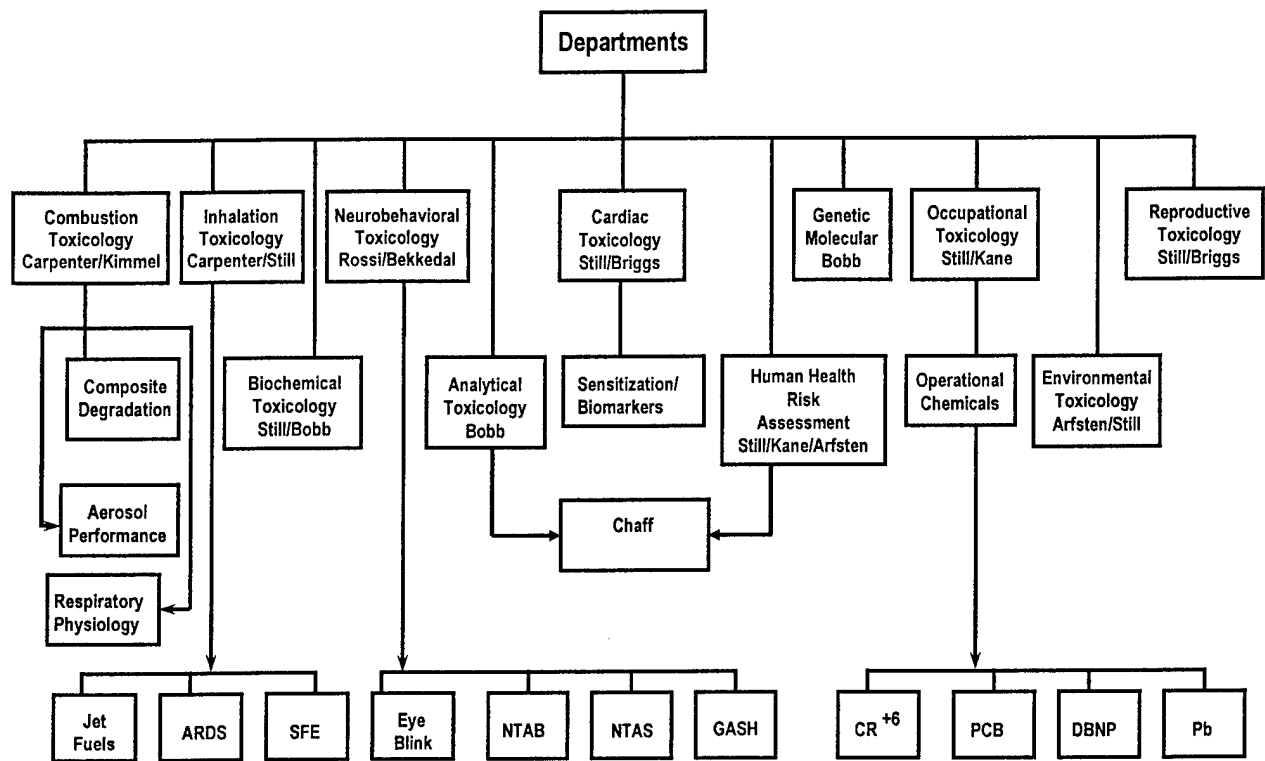
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———— Executive Steering Committee







Defense Medical Research Institute  
(DMRI)  
Briefing

29 January 2002

**c. Mission Accomplishments:**

**1) *Reproductive Toxicology:***

**OUTGOING MEDIA**

From the 23<sup>rd</sup>-26 April 2001, six presentations/posters/abstracts were presented at Issues and Applications in Toxicology and Risk Assessment at the Holiday Inn Conference Center, Fairborn, OH. Two of the six in this group were:

- 1) "Toxicokinetic Evaluation of 2,6-di-tert-butyl-4-nitrophenol (DBNP) in Male Rats," by Briggs, G.B.; Jung, A.E.; Price, W.A.; Still, K.R.; and
- 2) "Evaporation of Reproductive Toxicity from Exposure of Rats to Jet Propulsion Fuel JP-8 Vapor by Price," by W.A.; Briggs, G.B.; Grasman, K.A.; Still, K.R.

On 10-18 May 2001, fourteen posters were presented at the Annual Naval Health Research Center's (NEHC) 2001 Conference in San Diego, CA. Of the fourteen posters presented, one presented was as follows:

- 1) "Evaporation of Reproductive Toxicity from Exposure of Male Rats to Jet Propulsion Fuel JP-8 Vapor," by Price, W.A.; Briggs, G.B.; Grasman, K.A.; Still, K.R.

On 2-7 June 2001, nine posters were presented at the Annual American Industrial Hygiene Conference and Exposition 2001 Conference in New Orleans, LA. Of the nine posters presented, three of the nine were as follows:

- 1) "Evaluation of Reproductive Toxicity from Exposure of Male Rats to Jet Propulsion Fuel JP-8 Vapor," by W.A. Price; G.B. Briggs; Grasman; and K.R. Still (Abstract);
- 2) "Evaluation of Military Fuel Potential to Produce Male Reproductive Toxicity Using the Computer-Assisted Sperm Analysis System," by G.B. Briggs; W.A. Price; A.F. Walsh; W.K. Alexander; and K.R. Still (Abstract/Poster/Platform Presentation), and
- 3) "Comparative Study in Laboratory Rats and Rabbits to Validate Sperm Quality Methods and Endpoints," W.A. Price; G.B. Briggs; W.K. Alexander; and K.R. Still (Abstract).

On 23-28 Jun 2001, Dr. Briggs, Geo-Centers, attended the 41<sup>st</sup> Annual Meeting of the Teratology Society in Montreal, Canada. An international gathering of scientists engaged in reproductive and developmental (birth defects) toxicity reviewed current research and regulations involving this rapidly emerging technology. Dr. Briggs presented two posters relating to the recent JP-8 studies. The two presentations were as follows:

- 1) "Evaluation of Reproductive Toxicity from Exposure of Male Rats to Jet Propulsion Fuel JP-8 Vapor" by W.A. Price; G.B. Briggs; Grasman; and K.R. Still; and
- 2) "JP-8 Jet Fuel Toxicity Study in Rats; Potential Effects on the Regulation of Male Reproductive Toxicity," by G.B. Briggs; K.R. Still.

On 24 July 2001, two presentations/posters were submitted, cleared, and accepted for presentation at the International Conference on JP-8 Jet Fuel in San Antonio, TX to be held on Aug 7-11. The two presentations were as follows:

- 1) "JP-8 Male Reproductive Toxicity" by Briggs, G.B.; and Still, K.R.; and
- 2) "Evaluation of Reproductive Toxicity from Exposure of Male Rats to Jet Propulsion Fuel JP-8 Vapor," by Price, W.A.; Briggs, G.B.; Grasman, K.A.; and Still, K.R.

On 17 August 2001, a presentation/briefing was submitted, cleared, and accepted for presentation at the 4th Annual Army Force Health Protection Conference in Albuquerque, NM to be held on Aug 26-30, 2001, TN. That presentation was as follows:

- 1) "JP-8 Jet Fuel Vapor Reproductive Toxicity Study in Laboratory Rats," by Briggs, G.B.; Still, K.R.; Price, W.A.

In September 2001, six abstracts/posters were submitted and cleared to be presented at the Annual Meeting for the Society of Toxicology (SOT) in Nashville, TN on 17-21 March, 2002. One of the six topics to be presented will be as follows:

- 1) "Protein Expression in Rat Testicular Tissue Following Multiple Exposure Levels of JP-8 Vapors for 91 Days," by Briggs; Still; Witzmann.

## **2) Risk Assessment:**

### **OUTGOING MEDIA**

On 30 January 2001, the journal article "New Risk Communication Strategies to Protect U.S. Deployed Forces," Briggs, G.B.; Still, K.R.; Wilson, C.L. was cleared, then submitted to *Society for Risk Analysis* and is under peer review for consideration for publication.

From 23-26 April 2001, six presentations/posters/abstracts were presented at Issues and Applications in Toxicology and Risk Assessment at the Holiday Inn Conference Center, Fairborn, OH. One of the six in this group was:

- 1) "Exposure Assessments and the Health of Deployed Forces," by Still, K.R.

On 10-18 May 2001, fourteen posters were presented at the Annual Naval Health Research Center's (NEHC) 2001 Conference in San Diego, CA. Of the fourteen posters presented, two of the fourteen were as follows:

- 1) "Toxicokinetic Evaluation of 2,6-di-tert-butyl-4-nitrophenol (DBNP) in Male Rats," by Briggs, G.B.; Jung, A.E.; Price, W.A.; Still, K.R.; and
- 2) "On The Role of Occupational Health in the Acquisition Process," by A.F. Nordholm; N. Dolan; M. Lilienthal; A. Hesser; D. Macys; W.K. Alexander.

From May through July 2001, the abstract "Exposure Assessment and the Health of Deployed Forces," by Still, K.R.; Jederberg, W.W.; Ritchie, G.D. was cleared for presentation at the 23-26 April 2001 Issues and Applications in Toxicology and Risk Assessment Meeting at the Holiday Inn Conference Center, Fairborn, OH. In that same time period, the material was again re-cleared as an article to go to *The Science of the Total Environment*, per Darrol Dodd of AFRL/HEST. It was later re-directed by Mr. Dodd to send the publications in question to *Drug and Chemical Toxicology* per prior conversations with the editors. In July 2001, "Exposure Assessment and the Health of Deployed Forces," by Still, K.R.; Jederberg, W.W.; Ritchie, G.D. was accepted for publication in *Drug and Chemical Toxicology*.

From May through July 2001, the abstract "The Utilization of Risk Assessment in Tactical Command Decisions," by Jederberg, W.W.; Still, K.R.; Briggs, G.B. was cleared for presentation at the 23-26 April 2001 Issues and Applications in Toxicology and Risk Assessment Meeting at the Holiday Inn Conference Center, Fairborn, OH. In that same time period, the material was again re-cleared and accepted for publication with *The Science of the Total Environment*, per Darrol Dodd of AFRL/HEST.

On 2-7 June 2001, nine posters were presented at the Annual American Industrial Hygiene Conference and Exposition 2001 Conference in New Orleans, LA. Of the nine posters presented, three of the nine were as follows:

- 1) "Toxicology, Risk Assessment, and the Industrial Hygienist," by G.B. Briggs and K.R. Still (Presentation);
- 2) "Toxicity of 2,6 Di-tert-Butyl-4-Nitro-Phenol (DBNP)," by W.K. Alexander; K.R. Still; and G.B. Briggs (Abstract); and
- 3) "Weapons of Opportunity," by W.K. Alexander; K.R. Still; and G.B. Briggs (Abstract).

On 31 December 2001, the article "Toxic Industrial Chemicals as Weapons of Opportunity," by Still, K.R., Bobb, A.; Jederberg, W.W., Arfsten, D.P.; and Alexander, W.K. was cleared and then submitted to *Navy Medicine* for possible publication.

### 3) **Neurobehavioral Toxicology:**

#### **OUTGOING MEDIA**

Early in 2001, the article "A Review of the Neurotoxicity Risk of Selected Hydrocarbon Fuels," by Ritchie, G.D.; Still, K.R.; Alexander, W.K.; Nordholm, A.F.; Wilson, C.L.; Mattie, D.L. was cleared and then submitted to *Journal of Toxicology & Environmental Health* for possible publication.

On 11 January 2001, the article/publication "Antiepileptic Drug Modulation of Spontaneous and Chemically Induced EEG Paroxysms in the Fischer-344 Rat," by Ritchie, G.D.; Hulme, M.E.; Nordholm, A.F.; Rossi III, J. was cleared and then submitted to *Epilepsia/Lippincott Williams & Wilkins* for review.

On 13 February 2001, the article "Stress-Induced Sickness Behaviors: an Alternative Hypothesis for Responses during Maternal Separation," by Hennessy, M.B.; Deak, T.; and Schiml-Webb, P.A. was given a courtesy clearance and sent to *John Wiley and Sons* as part of a possible publication.

On 20 March 2001, an abstract/poster was cleared for presentation at the International Neurotoxicology Association World Congress in Estoril, Portugal to be held on June 18-23, 2001. That presentation was as follows:

- 1) "Eyeblink Classical Conditioning (EBCC): A Behavioral Biomarker if Hydrocarbon Toxicity?," by Rossi, J. III; Bekkedal, M.Y.V.; McInturf, S.M.; Ritchie, G.D.

In April 2001, four posters/abstracts were cleared for presentation at the Society for Neuroscience to be held in San Diego, CA on 10 November 2001. Those titles were as follows:

- 1) "An Evaluation of Phenobarbital as a Facilitator of Social Interaction in Juvenile Rats," by Bekkedal, M.Y.V.; Schoeling, M.; Smith, J.; McDougale, F.; Ritchie, G.D.; and Rossi, J., III.; and
- 2) "Interference with Eyeblink Classical Conditioning by Occupational JP-8 Exposure," by Ritchie, G.D.; McInturf, S., Nordholm, A.F., Bekkedal, M.Y.V.; Rossi, J.III.
- 3) "Gene Modulation in Total Brain Induced by Exposure to the Bicyclic Phosphorus Ester Trimethylolpropane Phosphate (TMPP)," by Russell; Bekkedal; Mann; Ritchie; Rossi; Stenger; Pancrazion; Andreadis; and
- 4) "Prolonged Perturbations in the Hippocampal Field Response Produced B4 Brief Exposure to Trmiethylolpropane Phosphate (TMPP)," by Deak, T.; McInturf, S.M.; Schoeling, M.; McDougale, F.J.; Rossi, J.,III.; Bekkedal, M.Y.V.

From 23-26 April 2001, six presentations/posters/abstracts were presented at Issues and Applications in Toxicology and Risk Assessment at the Holiday Inn Conference Center, Fairborn, OH. Three of the six in this group were:

- 1) "A Neurodevelopmental Study of the Effects of Oral Ammonium Perchlorate Exposure on the Motor Activity of Pre-Weanling Rat Pups," by Bekkedal, M.Y.V.; Carpenter, T.M.; Mattie, D.R.;
- 2) "Performance Capacity of Rats Exposed to Jet Fuel Vapor: A Case of Neurobehavioral Hormesis?" by Bekkedal, M.Y.V.; and
- 3) "Eyeblink Classical Conditioning (EBCC) Deficit as a Biomarker of Repeated Jet Fuel Exposure by," McInturf, S.M.; Bekkedal, M.Y.V.; Ritchie, G.D.; Nordholm, A.F.; Rossi, J. III.

From the 25-29 April 2001, two topics were presented at the International Behavioral Neuroscience Society (IBNS), in Cancun, Mexico. The two presentations were as follows:

- 1) "Eyeblink Classical Conditioning (EBCC): A Behavioral Biomarker of Hydrocarbon Toxicity?" by Rossi III, J.; Bekkedal, M.Y.V.; McInturf, S.M.; Ritchie, G.D.; and
- 2) "The Fischer-344 Rat: A Model of Absence Epilepsy During Aging," by Rossi III, J.; Ritchie, G.D.; Nordholm, A.F.

On 30 April 2001, "Developing a Tissue Based Biosensor to Investigate Specific Neuroactive Properties of Neurobehavioral Toxicants," authored by Rossi, J., III.; Bekkedal, M.Y.V.; Deak, T.; McInturf, S.; Ritchie, G.D., was cleared for the 11 November 2001 platform presentation at Society of Environmental Toxicology and Chemistry.

On 30 April 2001, "Effects of Repeated Exposure to JP-8 Jet Fuel Vapor on Learning of Simple and Difficult Operant Tasks by Rats," authored by Ritchie, G.D.; Rossi, J., III.; Nordholm, A.F.; Still, K.R.; Carpenter, R.L. was submitted, cleared, and sent to *Journal of Toxicology and Environmental Health* for possible publication.

From May through July 2001, the abstract "Performance Capacity of Rats Exposed to Jet Fuel Vapor: A Case of Neurobehavioral Hormesis," by Bekkedal, M.Y.V.; Ritchie, G.D.; Still, K.R.; Rossi, J., III. was cleared for presentation at the 23-26 April 2001 Issues and Applications in Toxicology and Risk Assessment Meeting at the Holiday Inn Conference Center, Fairborn, OH. In that same time period, it was again re-cleared as an article to go to *The Science of the Total Environment*, per Darrol Dodd of AFRL/HEST. It was later re-directed by Mr. Dodd to send the publications in question to *The International Journal of Human and Ecological Risk Assessment (HERA)* per prior conversations with the editors. In July 2001, "Performance Capacity of Rats Exposed to Jet Fuel Vapor: A Case of Neurobehavioral Hormesis," by M. Bekkedal; G. Ritchie; K. R. Still; J. Rossi III was accepted for publication in HERA.

On 10-18 May 2001, fourteen posters were presented at the Annual Naval Health Research Center's (NEHC) 2001 Conference in San Diego, CA. Of the fourteen posters presented, three of the fourteen were as follows:

- 1) "Neonatal Oral Ammonium Perchlorate Exposure and Motor Activity in Rat Pups," by M.Y.V. Bekkedal; T.L. Carpenter; D.R. Mattie; and
- 2) "Preliminary Results: Effects of Repeated JP-8 Jet Fuel Vapor Exposure on Eyeblink Classical Conditioning (EBCC) in Military Personnel," by G.D. Ritchie; S.M. McInturf; A.F. Nordholm; J. Rossi III; M.Y.V. Bekkedal; and
- 3) "Is the Perception of Physical Fatigue Mediated by Release of a Single Cytokine?," by Rossi, J., III.; Ritchie, G.D.; Bekkedal, M.Y.V.; and Wilson, C.L.

On 2-7 June 2001, nine posters were presented at the Annual American Industrial Hygiene Conference and Exposition 2001 Conference in New Orleans, LA. Of the nine posters presented, one of the nine was as follows:

- 1) "Validation of Animal-Based and In Vitro-Based Toxicology Assessment Systems," G.D. Ritchie; M.Y.V. Bekkedal; and K.R. Still (Platform Presentation).

On 6 June 2001, "Hormesis: Myth or Reality," authored by G.D. Ritchie; M.Y.V. Bekkedal; and J. Rossi III, was the topic of the platform presentation for the Wright State University's Journal Club.

On 10 June 2001, an abstract/platform presentation was submitted, cleared, and approved for presentation at the National Academies, Committee on Toxicology, JP-8, Washington DC on 18 June 2001. That topic was:

- " 1) "The Effects of JP-8 Exposure on Performance of Simple and Difficult Tasks," authored by Ritchie, G.D.; Bekkedal, M.Y.V.; Nordholm, A.F.; Rossi, J., III.; Still, K.R.

On 18 June 2001, Dr. G.D. Ritchie of Geo Centers, presented "The Effects of JP-8 Exposure on Learning or Performance of Simple and Difficult Tasks," to the National Academy of Sciences; Committee of Toxicology; JP-8 Toxicology Sub-Committee's Public Hearing held in Washington D.C.

On 21 July 01, "Effects of Repeated Exposure of Rats to JP-5 or JP-8 Jet Fuel Vapor on Neurobehavioral Capacity and Neurotransmitter Levels," by J. Rossi, III; G.D. Ritchie, which was cleared and sent on September 27, 2001 was published in the *Journal of Toxicology & Environmental Health: Part A*: vol. 63 number 6: 397-428.

On 16 July 2001, "A Neural Tissue Based Biosensor the Detection of Neurobehavioral Toxicants," by Deak, T.; and Rossi, J., III., was cleared and then sent to *Navy Medicine* for possible publication.

On 26 July 2001, "The Eyeblink Conditioning Response Test to Assess Performance in JP-8 Exposed Air Force Personnel Risk Assessment of Acute Exposure to Jet Fuel," by

Bekkedal, M.Y.V.; McInturf, S.M.; Ritchie, G.D.; Rossi, J., III., was cleared for presentation and final report for the Air Force and Texas Tech. University, International Conference for Jet Fuel to be held on 7 August 2001 in San Antonio TX.

In July 2001, the manuscript "Acute Neurobehavioral Effects in Rats from Exposure to HFC 134a or CFC 12," by Ritchie, G.D.; Kimmel, E.C.; Bowen, L.E.; Reboulet, J.E.; Rossi, J.,III., was published in *NeuroToxicology* 22 (2001) 233-248.

In July 2001, four topics were submitted, cleared, and accepted for presentation at the 40th Annual Meeting of the Society of Toxicology to be held from 18-21 March 2002, at the Opryland Hotel in Nashville, TN. Of the four presentations, one of the four was as follows:

- 1) "Using Microelectrode Arrays To Identify Neural Response Patterns Following Exposure To A Known Neurotoxicant," by J. Rossi III; T. Deak; S. McInturf; F. McDougale; G. Ritchie; M. Bekkedal

On 13 August 2001, the manuscript "Gene Modulation in Total Brain Induced by Exposure to the Bicyclic Phosphorus Ester Trimethylolpropane Phosphate (TMPP)," by Russell; Bekkedal; Mann; Ritchie; Rossi; Stenger; Pancrazion; Andreadis was cleared and sent to *Neuroscience Letters* for possible publication.

On 27 August 2001, an abstract/platform presentation was cleared and accepted for presentation at the JANNAF 30th Annual Conference to be held in Colorado Springs, CO on 24 September 2001. The presentation was as follows:

- 1) "The Effects of Ammonium Perchlorate on Spontaneous Locomotor Activity of Prewanling Rats," by Bekkedal, M.Y.V.; Carpenter, T.M.; Mattie, D.R.

On 14 September 2001, the manuscript "Serum Cleaved Tau Protein and Neurobehavioral Battery of Tests as Markers of Brain Injury in Experimental Bacterial Meningitis," by Irazuzta, J.E.; de Courten-Myers, G.; Zemlan, F.P.; Bekkedal, M.Y.V.; Rossi, J., III. was published in *Brain Research* 913 (2001) 95-105.

In September 2001, six abstracts/posters were submitted and cleared to be presented at the Annual Meeting for the Society of Toxicology (SOT) in Nashville, TN on 17-21 March, 2002. Two of the six topics to be presented will be as follows:

- 1) "In Vitro Electrical Kindling of a Mouse Brain Amygdalar-Pyriform Cortex Tissue Slice Using a 64-Electrode Microarray," by Ritchie, G.D.; McDougale, F.; Bekkedal, M.Y.V.; McInturf, S.M.; and Rossi, J., III. (Abstract/Poster); and
- 2) "Using Microelectrode Arrays to Identify Response Patterns in the Hippocampus During Exposure to Trimethylolpropabe Phosphate (TMPP)," Rossi, J.,III.; Deak, R.; McInturf, S.M.; McDougale, F.; Ritchie, G.D.; Bekkedal, M.Y.V. (Abstract).

On 6 November 2001, the manuscript "Biological and Health Effects of Exposure to Kerosene Based Jet Fuels and Performance Additives," by Ritchie, G.D.; Still, K.R.;



Rossi, J.,III.; Bekkedal, M.Y.V.; Bobb, A.J.; Arfsten, D.P. was submitted, cleared and sent to *Journal of Toxicology and Environmental Health, Part B* for possible publication.

On 19 November 2001, an abstract/platform presentation was cleared to be presented at the Non-Linear Dose-Response Relationships in Biology to be held from 11-13 June 2002 at the University of Massachusetts. The presentation was as follows:

- 1) "Neurobehavioral Hormesis: The Exclusion of Compounds that Activate Arousal Systems in the Brain," by Bekkedal, M.Y.V.; Ritchie, G.D.; Still, K.R.; Rossi, J.,III.

On 11 December 2001, an abstract/platform presentation was cleared to be presented at the 30<sup>th</sup> Annual JANNAF Conference to be held in Colorado Springs, CO from 24-28 September 2001. The presentation was as follows:

- 1) "The Effects of Ammonium Perchlorate on Spontaneous Locomotor Activity on Prewanling Rats," by Bekkedal, M.Y.V.; Carpenter, T.M.; Mattie, D.R.

On 31 December 2001, an abstract/platform presentation was cleared to be presented at the Annual Meeting of the International Behavioral Neuroscience Society to be held in Capri, Italy from 18 through 23 June 2002. The presentation was as follows:

- 1) "In Vitro Tissue Slice Neurophysiological Indicators of Neurobehavioral Competence," by Rossi, J.,III.; McInturf, S.M.; McDougale, F.; Ritchie, G.D.; Bekkedal, M.Y.V.

On 31 December 2001, an abstract/platform presentation was cleared to be presented at the 8th International Symposium: Neurobehavioral Methods and Effects in Occupational and Environmental Health to be held in Brescia, Italy from June 23-28, 2002. The presentation was as follows:

- 1) "Eyeblink Conditioning Deficits Following Chronic Occupational Exposure to Jet Fuel (JP-8)," by Rossi, J.,III.; Bekkedal, M.Y.V.; McInturf, S.M.; Egeghy, P.; LeMasters, G.; Gibson, R.; Ritchie, G.D.

#### **4)      *Inhalation Toxicology:***

### **OUTGOING MEDIA**

In 2001, "Attenuation of Ozone-Induced Lung Injury by Interleukin-10," by Reinhart, P.G.; Gupta, S.K.; Deepak, B.K., was given a courtesy clearance when it was accepted in *Toxicology Letters*.

On 26 February 2001, the manuscript "Carbon Dioxide Buildup During Whole Body Plethysmography: Effects on Breathing Pattern and Aerosol Deposition," by Kimmel, E.C.; Whitehead, G.S.; Carpenter, R.L. was cleared and submitted to *Journal of Aerosol Medicine*.

In March 2001, "Particulate Fraction Analysis of Pyrolyzed Carbon Graphite/Epoxy Advanced Composite Material," by Courson; Kimmel; and Still, was accepted to the *American Industrial Hygiene Association Journal*.

In March 2001, "A Small Animal Plethysmograph/Exposure Tube for Determination of Respiratory Mechanics during Exposure using a Non-Invasive Method to Measure Intrapleural Pressure," by Kimmel, was accepted to *Toxicological Methods*.

On 5 March 2001, the manuscript "Airway Reactivity Response to Carbon-Graphite/Epoxy Composite Material Smoke," by Kimmel, E.C.; Reboulet, J.E.; Courson, D.L.; Still, K.R. was submitted to *Journal of Applied Toxicology*. It was returned for revisions, named #S1812, and re-sent to publisher on 4 September 2001.

On 30 May 2001, the manuscript "Effect of Navy Chaff Release on Aluminum Levels in an Area of the Chesapeake Bay," by Wilson, C.L.; Arfsten, D.; Carpenter, R.L.; Alexander, W.K.; and Still, K.R. was sent to *Ecotoxicology and Environmental Safety* for possible publication.

On 2-7 June 2001, nine posters were presented at the Annual American Industrial Hygiene Conference and Exposition 2001 Conference in New Orleans, LA. Of the thirteen posters presented, two of the thirteen were as follows:

- 1) "Particulate Fraction Analysis of Pyrolyzed Carbon Graphite/Epoxy Advanced Composite Material," by D.L. Courson; E.C. Kimmel; and K.R. Still (Abstract/Poster); and
- 2) "Characterization of Aerosols Generated Through Pyrolysis of Advanced Composite Materials," D.L. Courson; W.K. Alexander; K.R. Still; and E.C. Kimmel (Abstract/Poster/Platform Presentation).

In July 2001, four topics were submitted, cleared, and accepted for presentation at the 40th Annual Meeting of the Society of Toxicology to be held from 18-21 March 2002, at the Opryland Hotel in Nashville, TN. Of the four presentations, one of the four was as follows:

- 1) "A Typical Path Model of Tracheobronchial Clearance of Inhaled Particles in Rats," by E.K. Kimmel; J.E. Reboulet; R.L. Carpenter.

#### **5) Chaff Countermeasure Toxicology:**

On 2 February 2001, the manuscript "Relative Bioavailability of Aluminum from Radiofrequency Chaff Countermeasures," by Wilson, C.L.; Zhang H.M.; Alexander, W.K.; Still, K.R. was submitted, cleared, and sent to *Journal of Environmental Toxicology and Chemistry*, and following on 15 November 2001, sent to *International Journal of Human and Ecological Risk Assessment* for possible publication.

In July 2001, four topics were submitted, cleared, and accepted for presentation at the 40th Annual Meeting of the Society of Toxicology to be held from 18-21 March

2002, at the Opryland Hotel in Nashville, TN. Of the four presentations, one of the four was as follows:

- 1) "Application of Toxicology in the Development of Environmentally-Friendly Electronic Countermeasures," by D. P. Arfsten; C. L. Wilson; K. R. Still; B. J. Spargo.

On 17 July 2001, the manuscript "Human and Environmental Health Issues Related to Use of Radio Frequency Chaff," by Wilson, C.L.; Arfsten, D.P.; Spargo, B.J. was submitted, cleared, and sent for possible publication in *Navy Medicine*.

In September 2001, six abstracts/posters were submitted and cleared to be presented at the Annual Meeting for the Society of Toxicology (SOT) in Nashville, TN on 17-21 March, 2002. One of the six topics to be presented will be as follows:

- 1) "Application of Toxicology in the Development of Environmentally-Friendly Countermeasures," by Arfsten; Wilson; Still; Spargo (Abstract/Poster).

On 22 October 2001, "Radio frequency Chaff: The Effects of Its Use in Training on the Environment" by D. P. Arfsten; C. L. Wilson; B. J. Spargo was submitted to *Ecotoxicology and Environmental Safety*.

#### **6) Jet Fuels Toxicology:**

#### **OUTGOING MEDIA**

In September 2001, six abstracts/posters were submitted and cleared to be presented at the Annual Meeting for the Society of Toxicology (SOT) in Nashville, TN on 17-21 March 2002. One of the six topics to be presented will be as follows:

- 1) "Protein Expression in Rat Testicular Tissue Following Multiple Exposure Levels of JP-8 Vapors for 91 Days," by Briggs, G.B.; Still, K.R.; Witzmann, F.

#### **7) Other Research:**

#### **OUTGOING MEDIA**

On 10-18 May 2001, thirteen posters were presented at the Annual Naval Environmental Health Center's (NEHC) 2001 Conference in San Diego, CA. Of the thirteen posters presented, eight of the thirteen were as follows:

- 1) "The Role of the Navy Hospital Corpsman Supporting Inhalation and Pulmonary Toxicology Research Projects at the Naval Health Research Center Detachment (Toxicology)," by Toohill, E.; Rice, K.; Carpenter, T.; Volkart, C.; Klosowski, A.; Murray, J.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Arfsten, D.; and Kimmel, E.;

- 2) "Hazardous Material and Control Programs Inside the Navy Toxicology Research Laboratory," by Toohill, E.; Klosowski, A.; Carpenter, T.; Rice, K.; Volkart, C.; Murray, J.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.;
- 3) "The Role of the Navy Hospital Corpsman Supporting Molecular Biology Projects at the Naval Health Research Center Detachment (Toxicology)," by Toohill, E.; Bobb, A.; Carpenter, T.; Rice, K.; Volkart, C.; Klosowski, A.; Murray, J.; Still, K.; Rossi, J. III; Kane, L.; Afrsten, D.;
- 4) "The Role of the Navy Advanced Laboratory Technician in Supporting DoD Research," by Toohill, E.; Volkart, C.; Carpenter, T.; Rice, K.; Murray, J.; Klosowski, A.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.;
- 5) "The Role of the Navy Hospital Corpsman Supporting the Research Projects," by Toohill, E.; Murray, J.; Carpenter, T.; Rice, K.; Volkart, C.; Klosowski, A.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.;
- 6) "The Navy Hospital Corpsman Supporting Naval Health Research Center Detachment (Toxicology) Research Programs," by Toohill, E.; Klosowski, A.; Carpenter, T.; Rice, K.; Murray, J.; Volkart, C.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.;
- 7) "The Supporting Role of the Navy Hospital Corpsman at the Tri-Service Toxicology Consortium," by Toohill, E.; Carpenter, T.; Rice, K.; Volkart, C.; Murray, J.; Klosowski, A.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.; and
- 8) "The Role of the Navy Hospital Corpsman Performing as a Research for Jet Fuels #8 Vaporized Inhalation Studies," by Toohill, E.; Carpenter, T.; Rice, K.; Volkart, C.; Murray, J.; Klosowski, A.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D.

**8) Administration:**

**OUTGOING MEDIA**

**FACILITIES AND EQUIPMENT**

**9) Work Units:**

**OUTGOING MEDIA**

## **FUNDING**

### **CRADAs and FUNDING**

In March 2001, the following ten PRMRP Letters of Intent were submitted:

- 1) "The Role of Toxic Response Methylation/Demethylation (TRMDM) in Chemically Induced Carcinogenesis," by LT Andrew Bobb, MSC, USNR; and LT Arfsten, MSC, USNR;
- 2) "Pathogenesis and Mechanisms of Acute Lung Injury: Inhalation Injury," by Dr. Kimmel, Geo-Centers and Dr. Reinhart, NHRC/TD;
- 3) "Impact of Stress on Sensitivity to Simulated Nerve Agents," by LT Arfsten, MSC, USNR;
- 4) "Evaluating the Health Risks of Embedded Depleted Uranium (Du) Shrapnel on Pregnancy and Offspring Development," by CAPT Still, MSC, USN;
- 5) "Characterization of the Pulmonary Toxicity in Rodents Following Sub-Acute Exposures to No Observable Effect Levels (NOEL) of Chemical Weapons," by Dr. Kimmel, Geo-Centers; and Dr. Reinhart, NHRC/TD;
- 6) "Testing the Neuro-Protective Properties of Vitamin D with *In Vitro* Measures of Neuronal Functions," by CDR Rossi, MSC, USN;
- 7) "Testing the Neuro-Protective Properties of Vitamin D with Neurobehavioral Tests Related to Learning and Memory," by Dr Bekkedal, NHRC/TD;
- 8) "Using a Tissue Based Biosensor for Predicting Neurobehavioral Compromise," by CDR Rossi, MSC, USN;
- 9) "Development of A Model of Chronic Fatigue Syndrome: Investigation of Triggers, Cofactors and Neural Mechanisms," by CDR Rossi, MSC, USN; and
- 10) "Gulf War Illnesses: Induction of Central Nervous System Sensitization by Environmental Exposures & Stressors," by CDR Rossi, MSC, USN.

In March 2001, the following 24 pre-proposals were submitted to the Office of Naval Research (ONR):

- 1) "Carbon Dioxide Reproduction and Developmental Toxicity and Risk Assessment: Characterization of a Submarine Atmospheric Constituent," by CAPT Still, MSC, USN; and Dr. Briggs, Geo-Centers;
- 2) "Risk Assessment of Female Reproductive and Offspring Developmental Toxicity from Exposure to JP-8 Jet Fuel Vapors in Navy Operations," by CAPT Still, MSC, USN; and Dr. Briggs, Geo-Centers;

- 3) "Evaluating the Health Risks of Embedded Depleted Uranium (DU) Shrapnel on Pregnancy and Offspring Development," by CAPT Still, MSC, USN ;and Dr. Briggs, Geo-Centers;
- 4) "Functional and Biochemical Changes of Lung Cells in Response to Hyperbaric Conditions," by Dr. Reinhart, NHRC/TD;
- 5) "Assessment of Pulmonary Toxicity from Jet Engine Emissions," by Dr. Reinhart, NHRC/TD; and Dr. Kimmel, Geo-Centers;
- 6) "Risk for Acute Airways Hyperresponsiveness/Hyper Sensitization from Exposure to Jet Fuels," by Dr. Reinhart, NHRC/TD; and Dr. Kimmel, Geo-Centers;
- 7) "Health Risks from Exposure to Jet Fuels: Respiratory Allergy and Fuel Contamination Issues," by Dr. Carpenter, NHRC/TD; and Dr. Kimmel, Geo-Centers;
- 8) "Development of Tools for Health Risk Assessment of Aerosol Inhalation Hazards: Aerosol Clearance Models," by Dr. Carpenter, NHRC/TD;
- 9) "Environmental Effects on Expression and Activity Levels of Enzymes Involved in the Activation/Detoxification of Nerve Agents," by LT Arfsten, MSC, USNR; and Dr. Briggs, Geo-Centers;
- 10) "Immunosuppression, Lung Injury, and Neuro-Behavioral Toxicity Induced by JP-5 Jet Fuel Delivered as Aerosol Versus Vapor Phase," by CDR Rossi, MSC, USN;
- 11) "Performance Reduction from Exposure of Navy Personnel to JP-5," by CDR Rossi, MSC, USN;
- 12) "Apple Jelly and Sky Goo: Do Bacterial/Fungal Contaminants of Jet Propulsion Fuel-5 (JP-5) Present a Risk to Naval Service Personnel," by CDR Rossi, MSC, USN;
- 13) "Use of Micro-Electrode Array Technology to Assess Changes in Neurobehavioral Integrity Following Toxicant Exposure," by CDR Rossi, MSC, USN;
- 14) "New Methods to Detect or Predict Neuro-Behavioral Sensitization to Low-Level Chemical Exposures," by Dr. Bekkedal, NHRC/TD;
- 15) "The Toxic Effects of Chromium Exposure in the Gulf War on Reproduction Function in a Laboratory Animal Surrogate Rodent Model," by LT Arfsten, MSC, USNR;
- 16) "Basic Research on the Development of a Red Blood Cell Substitute for Treating Blood Loss in Support Combat Casualty Care," by LT Arfsten, MSC, USNR;

- 17) "Assessment of the Tumor-Promoting Activity of CLP Liquid," by LT Arfsten, MSC, USNR;
- 18) "Risk for Acute Airways Hyperresponsiveness/Hyper Sensitization from Exposure to Jet Fuels," by Dr. Reinhart, NHRC/TD;
- 19) "Functional and Biochemical Changes of Lung Cells in Response to Hyperbaric Conditions," by Dr. Reinhart, NHRC/TD;
- 20) "Impact of Simulated Combat Stress on Enzymes that Inhibit or Enhance Organophosphate and Other Chemical Toxicity," by LT Bobb, MSC, USNR;
- 21) "Development of a Model System for the Study of DNA Methylation Effects in Toxicity and Carcinogenesis," by LT Bobb, MSC, USNR;
- 22) "The Use of Human Embryonic Stem Cell Tissue Culture as an *in Vitro Model* For A Screening Assay Of Toxicity," by CAPT Still, MSC, USN;
- 23) "Aerosol Deposition in Bronchial Structures," by Dr. Carpenter, NHRC/TD; and
- 24) "The Evaluation of Male Reproductive System Effects of Imbedded Depleted Uranium," by CAPT Still, MSC, USN.

On 15 June 2001, HMC Edward Toohill had composed a manuscript for the Skywriter that was published on that date. The article described the hospital Corpsman's function here at TOXDET.

In June 2001, HMC Edward Toohill presented a topic, "HMs Needed for Toxicology Support."

In August 2001, LT Bobb, USNR, MSC, was authorized and awaiting funds to conduct a directed gene silencing system for the Engineering of Zebrafish (*Danio Rerio*) Metabolism research project.

In August 2001, LT Arfsten, USNR, MSC, was authorized and awaiting funds to conduct a determination of the Dermal Carcinogenic Potential of Break-Free, CLP.

In August 2001, CAPT Still, USN, MSC, was authorized to conduct a Congressional Peer Reviewed Study for the Characterization of the Reproductive Toxicity of Depleted Uranium in Rats.

In 2001, a manuscript entitled, "Short-Term Dermal Absorption and Penetration of Chemicals from Aqueous Solutions: Theory and Experiment," authored by McDougal, J.N.; Jurgens-Whitehead, J.L. was published in *Risk Analysis*, Vol 21, No 4, 2001 and had a courtesy clearance.

### **PERSONNEL**

On 24 February, 2001, LT Darrel P. Arsften reported to the TOXDET after Officer Indoctrination School, Naval Education and Training Center, Newport, RI.

On 13 July 2001, HMC Billy R. Dean reported to the TOXDET.

On 15 November, 2001, HM3 Christopher Fike reported to the TOXDET.



**8) Research program descriptions:**

**WORK UNITS**

New:

DN60204-NEHC Reimbursable-60204 Risk Assessment and Develop Toxicity Values	Start: 10-01-01	Term: 09-30-06
DN60261-60261 A Directed Gene Silencing for the Engineering of Zebrafish (Danio rerio) Metabolism (Bobb)	Start: 10-01-01	Term: 10-01-03

Continuations:

DN235003 DARPA Reimbursable-10005 DARPA Tissue Based Biosensor (TBB) Technologies	Start: 10-01-00	Term: 10-01-03
DN235008-60161 (ARMY Reimbursable) Cellular and Molecular Changes of the Respiratory System in Rats Exposed to ACM Combustion (Reinhart)	Start: 10-01-00	Term: 09-30-02
DN235009-62233N.0330.60162 Liver Toxicity Models (Carpenter)	Start: 10-01-00	Term: 09-30-03
DN235010-62236N.04124.60163 ARDS/Aerosol Clearance Models (Still)	Start: 10-01-00	Term: 09-30-03
DN234933-DARPA Reimbursable (Grant)-1907 University of Southern California	Start: 10-01-00	Term: 09-30-03

Completions/Terminations:

DN234935-63721N.W2210 NAWCAD Reimbursable-1822 EcoChaff Toxicity of Airborne Expendable Degradable Plastics	Start: 06-22-99	Comp: 09-30-01
DN235001-61153N MR4112-10003 61153N MR4203-10003 Global Assessment Test for Humans (GASH)		Comp: 09-30-01
DN235004-63706N-M00096.004-10006 Development of a Tissue Based Sensor System		Comp: 09-30-01
DN2233N.03330-10008		

Development of Biomarkers Correlated to Neurobehavioral Effect from Exposure to Jet Fuel (JP-8) and Determination of the Utility of Using a Lumping Approach to Facilitate the Toxicological Assessment of Complex Mixtures	Comp: 09-30-01
DN244519-NEHC Reimbursable-1323 Risk Assessment - Develop Toxicity Values	Term: 10-01-01
DN244555-63706.M00096.004-1516 Trimethylolpropane Phosphate (TMPP)	Comp: 09-30-01
DN234931-61152N.00004.001-1905 Modulation of Phase I Drug Metabolizing Enzyme Activity by JP-8 Jet Fuel Exposure	Comp: 09-30-01
DN234932-61152N-MR0004-1906 Cellular and Reproductive Toxicity of (DBNP)	Comp: 09-30-01

## 2. SPECIAL TOPICS:

### VISITS

On March 14<sup>th</sup> 2001, CDR Scott E. Foster of CNO (N931) and CDR Doug Forcino BUMED Medical R&D Laboratories 6.4 Program visited NHRC/TD. This visit was part of an initiative to assist researchers in further developing research proposals in support of the BUMED RDT&E 6.4 Program funding. More than ten NHRC/TD scientific researchers and executive staff attended these briefings. The presentations involved the current initiatives of CNO's N931 sponsorship and the BUMED 6.4 program in further development of existing prototypes and technologies used for the operating forces. After these presentations, the visitors toured toxicology and neurobehavioral laboratories and met with individual scientists working at NHRC/TD.

### ACCOMPLISHMENTS

On March 2001, Dr. Marni Bekkedal participated in a high school outreach program at the Wright State University Psychology Department. The purpose of the program was to introduce students to areas of psychology that go beyond the traditional clinical application. Approximately 20 students from Fairborn High School attended the session where they received information about psychology as a major at Wright State University and specific information about neuroscience. Dr. Bekkedal discussed her background and how she came to work in a toxicology laboratory for the Navy and presented introductory information about the brain and how it works to control every aspect of our behavior.

On 11-18 May 2001, of the thirteen posters presented at the Annual Naval Health Research Center's (NEHC) 2001 Conference in San Diego, CA, three presented won awards in their perspective categories, there were as follows:

- 1) "Toxicokinetic Evaluation of 2,6-di-tert-butyl-4-nitrophenol (DBNP) in Male Rats," by Briggs, G.B.; Jung, A.E.; Price, W.A.; Still, K.R. won Best Environmental Programs Research Poster;
- 2) "Evaporation of Reproductive Toxicity from Exposure of Male Rats to Jet Propulsion Fuel JP-8 Vapor," by Price, W.A.; Briggs, G.B.; Grasman, K.A.; Still, K.R. won Best Occupational Health Research Poster; and
- 3) "The Supporting Role of the Navy Hospital Corpsman at the Tri-Service Toxicology Consortium," by Toohill, E.; Carpenter, T.; Rice, K.; Volkart, C.; Murray, J.; Klosowski, A.; Still, K.; Rossi, J. III; Kane, L.; Bobb, A.; Afrsten, D. won Best Research and Development Information Poster.

On Saturday and Sunday May 12 and 13, 2001 in San Diego CA, the following two full day courses were presented by ToxDet personnel:

- 1) "Industrial Toxicology," by CAPT K.R. Still; CDR W.W. Jederberg; CDR W.K. Alexander; CDR T. Anderson; LCDR P. Smith; LT C. Silvia; and

- 2) "Risk Assessment for the IH," by CAPT K.R. Still; CDR W.W. Jederberg; and CDR W.K. Alexander.

On 2-7 June 2001, nine posters were presented at the Annual American Industrial Hygiene Conference and Exposition 2001 Conference in New Orleans, LA. Of the nine, "Toxicology, Risk Assessment, and the Industrial Hygienist," by G.B. Briggs and K.R. Still (Presentation) was presented the award for "BEST POSTER."

ToxDet military personnel attended CBRE training 28-30 November 2001.

In August 2001, Petty Officer Kirby, USN, and family were presented "Outstanding Family Recognition" by Wright-Patterson Air Force Base Family Service Center ceremony hosted by Gen Lyles and LtGen Douglas.

In August 2001, nineteen ToxDet members were presented with Letters of Appreciation from NEHC for participation at the NEHC workshop.

In August 2001, eight ToxDet members were presented with letters of appreciation from Wright-Patterson Air Force Base Family Service Center for Community Service.

Mr. William Price (Geo-Centers) received the Society of Toxicology (SOT) Student Travel Award for his research work on jet fuel influences on reproductive endpoints in rats.

CAPT Still and LT Bobb participated in the SAHAP meeting in Norfolk, VA for which 172 chemical OELs were adopted for submarines.

CAPT Still is a member of the U.S. EPA National Advisory Committee on Acute Exposure Guidelines for Hazardous Chemicals which was awarded Vice President Gore's HAMMER Award at a ceremony on 8 Jan 01.

CAPT Still was re-appointed Assistant Professor at USUHS, Preventive Medicine and Biometrics. BUMED-02 appointed CAPT Still as the Navy Representative to the Joint Technology Coordinating Group Three (Medical Chemical Defense). CAPT Still was appointed as a member of the Board of Directors for an international group working on low dose exposure levels at the University of Massachusetts, School of Public Health.

CDR Rossi is working with DARPA in Washington D.C. on a Tissue Bio-Sensor Project.

## **SEASONAL**

The TOXDET hosted its annual Holiday Dinner Wednesday, 22 November 2001, for all TOXDET personnel and their families. The Thanksgiving Committee made it a fantastic success.

The holiday routine was in effect from mid-December 2001 through 04 January 2002.

## **NOTABLES**

### **MEDIA REVIEWED AT TOXDET**

### **3. Supporting Documents**

Scientific and Technical Reports:

#### **TECHNICAL REPORTS**

1. *Biological and Health Effects of JP-8 Exposure*, G.D. Ritchie; M.Y.V. Bekkedal; A.J. Bobb; K.R. Still, TOXDET 01-01.
2. *2001 TOXDET Command History*, K.R. Still; L.V. Kane, TOXDET 01-02.

## Biography of the Officer in Charge

**Kenneth R. Still, Ph.D.**

**Captain, Medical Service Corps, U.S. Navy  
Officer-in-Charge**

**Naval Health Research Center Detachment (Toxicology),  
Wright-Patterson Air Force Base, OH**

Captain Kenneth R. Still, Medical Service Corps, U.S. Navy, born in St. Joe, Arkansas, received his baccalaureate degree in Biology from Portland State University, Portland, Oregon in 1970. In 1972, he received his Master of Science degree in Physiological/Chemical Ecology from the same University. He subsequently earned a Doctorate in Physiological/Chemical Ecology from Oklahoma State University in 1976. In 1989, he received a Masters in Business Administration with emphasis in Financial Management and Labor Relations from Chaminade University of Honolulu, Hawaii.



Captain Still was commissioned a Lieutenant Junior Grade, Medical Service Corps, U.S. Navy Reserve, in 1977 and entered active duty on January 3, 1978. From January 1978 until November 1981, he served as Afloat and Staff Industrial Hygienist, Naval Hospital Bremerton, Washington. During the period of November 1981 through October 1984, he was assigned to the Navy Environmental Health Center, Norfolk, Virginia as Special Assistant to the Commanding Officer for Industrial Hygiene and as Head, Occupational Health Planning and Analysis Department and Occupational Toxicology Department. During this tour Captain Still developed, implemented and taught the Navy's Workplace Monitor Training Program. He next served as Head, Occupational Health Branch, Naval Medical Command (Bureau of Medicine and Surgery), Washington, DC from October 1984 until June 1987. Following this, while attached to Navy Environmental Preventive Medicine Unit Number 6, Captain Still was assigned as Deputy Director, Occupational Safety and Health Programs at Naval Logistics Pacific Command, in Pearl Harbor, Hawaii from June 1987 through June 1989. From July 1989 through October 1990, Captain Still served as Director, Occupational Safety and Health Programs at Commander in Chief, U.S. Pacific Fleet headquarters, Pearl Harbor, Hawaii. From November 1990 through November 1994, he served as Director, Naval Inspector General Oversight Inspection Unit, for Occupational Safety, Health and Environmental Program Compliance in Norfolk, Virginia. During this tour Captain Still directed the Navy Occupational Safety and Health Inspection Program and the Navy Environmental Inspection Team. On 9 December, 1994 Captain Still assumed Command as the Officer-in-Charge, Naval Medical Research Institute Toxicology Detachment, WPAFB, OH. On 01 October 1998 Captain Still became the Officer-In-Charge of the Naval Health Research Center Detachment (Toxicology).

Captain Still is a member of the Defense Department's Acquisition Professional Community and is acquisition qualified in Management. He is a recipient of Vice President Gore's Hammer Award for Reinventing Government and holds Adjunct Professorship in Preventive Medicine/Biometrics at the Uniform Services University of Health Sciences, where he teaches Toxicology and Industrial Hygiene.

Captain Still is a professional member of the American Academy of Industrial Hygiene, the American Industrial Hygiene Association, Society of Toxicology, American College of Toxicology, Association of Government Toxicologists, American Society of Safety Engineers, American Conference of Governmental Industrial Hygienists, Navy Industrial Hygiene Association, Sigma Xi, Society of Risk Analysis, International Occupational Hygiene Association, Academy of Hazardous Materials Management, National Registry of Environmental Professionals, and the Naval Institute. He holds quintuple Board Certifications in the fields of Industrial Hygiene, Occupational Safety, Hazardous Materials Management, Environmental Management, and Environmental Auditing. Captain Still is a Registered Environmental Manager, Certified Environmental Auditor, Registered Environmental Property Assessor, and, Registered Environmental Professional under the National Registry of Environmental Professionals, and is Board Eligible for the American Board of Toxicology. Captain Still has over 155 publications in the fields of Industrial Hygiene, Toxicology, Physiology, Ecology, Human Health Risk Assessment and Environmental Risk Assessment.





REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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				5b. GRANT NUMBER	
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